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## EARTHQUAKE PREPAREDNESS ROUNDTABLE PRESS PACKET

*September 22, 2015*

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## What's at Stake?

Over the last five years, there have been at least six catastrophic earthquakes across the globe. This month, an 8.3 magnitude earthquake hit Chile, triggering a tsunami warning across the Pacific. On May 12 and April 25, 2015, just two weeks apart, a 7.3 magnitude earthquake and a 7.8 magnitude earthquake struck Nepal. On March 11, 2011, a 9.0 magnitude earthquake jolted Honshu, Japan. In 2010, there were two powerful earthquakes within a month of each other—the January 12<sup>th</sup> earthquake in Haiti and the February 27<sup>th</sup> 8.8 magnitude earthquake in Chile. Combined, these earthquakes caused hundreds of thousands of deaths and injuries and a tremendous amount of property damage. Some caused tsunamis that washed away towns and resulted in damage in other countries.

Here in the United States, every state has the potential for earthquakes, and the U.S. Geological Survey estimates that “42 of the 50 states have a reasonable chance of experiencing damaging ground shaking from an earthquake in 50 years (the typical lifetime of a building).”<sup>1</sup> Earthquakes also pose a national challenge because 75 million Americans live in areas of significant seismic risk. Unlike hurricanes, tornados, and other storms, earthquakes strike without warning and may trigger devastating secondary effects, such as landslides, fires, tsunamis, and nuclear meltdowns. The damage wrought by earthquakes can have a significant impact on people, infrastructure, and the economy.

The States of Oregon, Washington and northern California are at particular risk of an earthquake on the Cascadia Subduction Zone. Recent subduction zone earthquakes around the world underscore the catastrophic impacts the Pacific Northwest and the Nation will face when the next Cascadia Subduction Zone earthquake and tsunami occurs. Earthquakes on similar subduction zones include the 2004 magnitude 9.1 Indonesia quake that caused 228,000 fatalities; the 2010 magnitude 8.8 Chile quake that caused 500 fatalities; and the 2011 magnitude 9.0 Japan quake that caused 18,000 fatalities.

States in the Pacific Northwest are partnering with the federal government to increase preparedness for the next earthquake with the goal of reducing earthquake losses, damages, and overall disaster losses. Much more work is still needed though to establish an earthquake early warning system and to encourage smart building and mitigation measures that will ultimately drive down the costs of these disasters.

The Committee on Transportation & Infrastructure will hold a roundtable on Tuesday, September 22, 2015, at 10:30 a.m. in the HEDCO Education Building, Room 230T at the University of Oregon, 1655 Alder Street Eugene, Oregon titled “Earthquake Early Warning in the Pacific Northwest: Preparing for the Big One.” The event will bring together federal officials and academics to discuss earthquake resiliency programs and efforts, the Shake Alert earthquake early warning system, and next steps for developing an offshore earthquake early warning system. Invited participants include representatives from the Federal Emergency Management Agency (FEMA), the United States Geological Service, National Oceanic Atmospheric Administration, Oregon State University, University of Oregon, the City of Eugene, and the State of Oregon.

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<sup>1</sup> [http://www.usgs.gov/blogs/features/usgs\\_top\\_story/new-insight-on-the-nations-earthquake-hazards/](http://www.usgs.gov/blogs/features/usgs_top_story/new-insight-on-the-nations-earthquake-hazards/)

## Earthquake Preparedness Roundtable Participants

### **Representative Peter DeFazio (D-OR)**

Ranking Member  
House Committee on Transportation and Infrastructure

### **Senator Arnie Roblan**

Oregon State Legislature  
Chair, the Senate Committee on Education

### **Ms. Tamra Biasco**

Risk Analysis Branch Chief  
Federal Emergency Management Agency

### **Dr. Doug Givens**

Earthquake Early Warning Coordinator  
United States Geological Survey

### **Ms. Marie Eble**

Pacific Marine Environmental Laboratory  
National Oceanic and Atmospheric Administration

### **Matt Garrett**

Director, Oregon Department of Transportation

### **Paul Mather**

Administrator, Highway Division  
Oregon Department of Transportation

### **Jay Wilson**

Clackamas Co. Resilience Coordinator  
Chairman of OR Seismic Safety Policy Advisory Commission (OSSPAC)

### **Matt McRae**

Climate and Energy Analyst  
City of Eugene

### **Andre Le Duc**

Executive Director, UO Enterprise Risk Services, CREW board member  
Founder, Oregon Partnership for Disaster Resilience and the Disaster Resilient University Network (DRU)

### **Dr. Ray Weldon**

Department of Geological Sciences, University of Oregon  
Member, US Geological Survey Seismic Hazard Map Advisory Committee  
Member, the Working Group on California Earthquake Probabilities

### **Dr. Amanda Thomas**

Department of Geological Sciences, University of Oregon  
Pacific Northwest Seismic Network

**[Dr. Anne Trehu](#)**

Professor, Geology and Geophysics  
Oregon State University.

**[Dr. Scott Ashford](#)**

Dean, College of Engineering  
Oregon State University

**[Mr. Patrick Corcoran](#)**

Oregon Sea Grant  
Oregon State University

**[Professor William Wilcock](#)**

Marine Geophysicist  
University of Washington

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## DeFazio History on Earthquake Preparedness

As the former Ranking Member of the House Committee on Natural Resources, and the current Ranking Member of the House Committee on Transportation and Infrastructure, DeFazio has worked to increase earthquake preparedness along the West Coast. DeFazio has fought for increased funding for early warning detection systems.

### HEARINGS

- As Ranking Member of Natural Resources:
  - In March, 2014, the Subcommittee on Energy and Mineral Resources of the Committee on Natural Resources held an Oversight Hearing titled "*Advances in Earthquake Science: 50th Anniversary of the Great Alaskan Quake.*" [To watch the hearing click here.](#)
  - In June, 2014, the Subcommittee on Energy and Mineral Resources of the Committee on Natural Resources held an Oversight Hearing titled "*Whole Lotta Shakin': An Examination of America's Earthquake Early Warning System Development and Implementation.*" At DeFazio's request, UO Professor Toomey testified about the specific seismic risks and challenges in the Pacific Northwest. [To watch the hearing or read Prof. Toomey's testimony click here.](#)
- As Ranking Member of Transportation and Infrastructure:
  - In May, 2015, the Subcommittee on Economic Development, Public Buildings, and Emergency Management held a hearing on "*Pacific Northwest Seismic Hazards: Planning and Preparing for the Next Disaster*" at DeFazio's request.
    - The hearing looked at the earthquake risk across the Nation but specifically in the Pacific Northwest and included a discussion of the need for an EEW system, strong building codes, and better preparedness. It also looked at FEMA's duties under the National Earthquake Hazards Reduction Program (NEHRP). At his invitation, Dr. Scott Ashford, Dean of OSU's College of Engineering testified. [To watch the hearing and read Dr. Ashford's testimony, click here.](#)

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## LETTERS

- In April, 2014, DeFazio joined other Members of Congress from Oregon, Washington and California urging a \$16.1 million appropriation to the USGS for the construction, operation and maintenance of an Earthquake Early Warning system (EEW). [See attachment 1.](#)
- In May, 2014, DeFazio wrote to then-Governor Kitzhaber outlining the importance of allocating funds to the UO for purchase of a National Science Foundation land-based seismograph array to bolster early earthquake warning systems. [See attachment 2.](#)
- In March, 2015, DeFazio joined Rep. Adam Schiff (D-CA) in sending a letter to the Interior Appropriations Subcommittee urging \$16.1 million be appropriated for the transition of the EEW from a demonstration project to an operational system. [See attachment 3.](#)
- In June, 2015, DeFazio wrote a letter to the FEMA Administrator urging him to allocate sufficient monetary and human resources to the NEHRP so that FEMA can perform its statutory duties. Under NEHRP, FEMA plays a role in earthquake education and awareness as well as promoting the implementation of research results and improving preparedness, which includes promoting better building practices. [See attachment 4.](#)

## LEGISLATION

- In March, 2015, DeFazio joined Chairman Barletta, Chairman Shuster and Ranking Member Carson in introducing H.R. 1471, the FEMA Disaster Assistance Reform Act of 2015. The bill included language at DeFazio's request clarifying that mitigation funds made available under the Pre-Disaster Mitigation (PDM) program and the Hazard Mitigation Grant Program (HMGP) may be used to reduce risk caused by earthquake hazards, including making improvements in support of building an EEW system. This would include using mitigation funds for seismometers, GPS receivers, and associated infrastructure needed for an EEW. Under both PDM and HMGP, the State selects/recommends projects. [A summary of the legislation can be found here.](#)
- In July 2015, DeFazio introduced H.R. 3420, legislation that would require FEMA to develop a plan, and identify the necessary funding for purchase and installation of an earthquake early warning system for the Cascadia Subduction Zone. [To view video of DeFazio discussing his legislation, click here.](#)

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## PRESS RELEASES

- [\*Congress Negligent for Failing to Protect Citizens with Earthquake Early Warning System 6-10-14\*](#)
- [\*DeFazio Criticizes Congress's 'Tombstone Mentality'. Urges Action on Earthquake Preparedness and Resiliency 5-19-15\*](#)
- [\*DeFazio Introduces Bill to Fund Earthquake Early Warning System for Pacific Northwest 7-28-15\*](#)
- [\*DeFazio Announces USGS Grant To Support West Coast Earthquake Early Warning System 7-30-15\*](#)

[\*Return to Table of Contents\*](#)

## ATTACHMENTS

## April 2014 Letter to Appropriators

**Congress of the United States**  
**Washington, DC 20515**

April 3, 2014

The Honorable Ken Calvert  
 Chairman  
 Subcommittee on the Interior, Environment, and  
 Related Agencies Appropriations  
 B-308 Rayburn House Office Building  
 Washington, DC 20515

The Honorable James Moran  
 Ranking Member  
 Subcommittee on the Interior, Environment, and  
 Related Agencies Appropriations  
 1016 Longworth House Office Building  
 Washington, DC 20515

Dear Chairman Calvert and Ranking Member Moran:

As you craft the Fiscal Year 2015 Interior and Environment Appropriations bill, we respectfully request that you provide the U.S. Geological Survey (USGS) with an additional \$16.1 million for the construction, operation and maintenance of an Earthquake Early Warning System.

The USGS, in collaboration with Caltech, UC Berkeley, and the University of Washington, has developed an Earthquake Early Warning system that detects waves radiating from the epicenter of a quake and would provide people with several to tens of seconds of warning in California, and up to few minutes in Washington and Oregon through their phones, computers and other media. With advanced notice, people can take cover, automated systems can be triggered to slow down trains and manage the power grid, doctors can pause surgeries, and more. The technology has been tested and proven to work effectively.

An Earthquake Early Warning system along the West Coast would cost \$16.1 million per year to construct, operate and maintain. FEMA has estimated that earthquakes cost the United States, averaged over the long term, more than \$5 billion a year. This common-sense investment will save lives, protect businesses, and could make a real difference in more rapid recovery for local communities, the federal government and the economy as a whole.

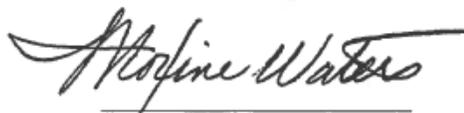
While we cannot predict when and where the next major earthquake will hit, we must do all we can to prepare ourselves so that we can mitigate the injuries, destruction, and chaos as much as possible. We appreciate your consideration of our request, and we look forward to working with you.

Sincerely,

  
 Adam B. Schiff

  
 Peter A. DeFazio

  
 Henry A. Waxman

  
 Maxine Waters

*Lucille Roybal-Allard*

Lucille Roybal-Allard

*Jim Costa*

Jim Costa

*Julia Brownley*

Julia Brownley

*Judy Chu*

Judy Chu

*Grace F. Napolitano*

Grace Napolitano

*Linda J. Sanchez*

Linda Sánchez

*Loretta Sanchez*

Loretta Sanchez

*Jackie Speier*

Jackie Speier

*Mike Honda*

Mike Honda

*Anna G. Eshoo*

Anna G. Eshoo

*Zoe Lofgren*

Zoe Lofgren

*Jim McDermott*

Jim McDermott

*Scott Peters*

Scott Peters

*Barbara Lee*

Barbara Lee

*Janice Hahn*

Janice Hahn

*Jared Huffman*

Jared Huffman

*Eric Swalwell*

Eric Swalwell

*Adam Smith*

Adam Smith

*Alan S. Lowenthal*

Alan S. Lowenthal

*Sam Farr*

Sam Farr

*Mark Takano*

Mark Takano

*Brad Sherman*

Brad Sherman

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## May 2014 letter to former Gov. Kitzhaber

PETER A. DeFAZIO  
4TH DISTRICT, OREGON

NATURAL RESOURCES  
RANKING MEMBER

TRANSPORTATION AND  
INFRASTRUCTURE

SUBCOMMITTEES:  
AVIATION

HIGHWAYS AND TRANSIT  
RAILROADS



### Congress of the United States House of Representatives

May 1, 2014

Governor John Kitzhaber  
254 State Capitol  
Salem, Oregon 97310

Dear Governor Kitzhaber:

The U.S. Geological Survey along with partner universities has been planning for deployment of a public West Coast Earthquake Early Warning system. This is especially important to the State of Oregon given our current state of readiness and the likelihood that a major earthquake will occur sometime in the future.

I have joined with colleagues in Congress to try to secure the \$16.4 million reoccurring cost necessary to build out and manage the West Coast Earthquake Early Warning system. While this federal government effort is underway, there is an opportunity for the State of Oregon to preserve and strengthen seismic monitoring activities.

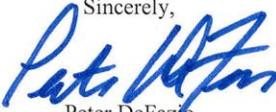
The University of Oregon (UO) and the University of Washington currently provide seismic monitoring through the Pacific Northwest Seismic Network. The UO, through faculty and associated technicians, is responsible for maintaining and monitoring stations located in Oregon. The Pacific Northwest Seismic Network locates more than 1,400 earthquakes per year greater than magnitude 1.0 in Washington and Oregon. Thus, the network provides an assessment of earthquake and volcanic risks.

Unfortunately, the State of Oregon has many fewer sensors, particularly in southwestern Oregon. Unlike the states of Washington and California the State of Oregon does not partner to support seismic monitoring. Many of the resources available in Oregon were procured using federal research grant funds but this funding source has not kept pace with the investments being made by our West Coast partners. For example, the State of Washington provides the University of Washington with \$600,000 for seismic monitoring and the State of California invests about \$1.2 million with UC-Berkeley/Caltech.

There is a time sensitive opportunity to preserve the sensor capacity that we have in our state by purchasing a National Science Foundation array of seismometers scheduled to be demobilized and moved to Alaska in 2015. Purchase of this array of seismometers would greatly enhance capabilities of the Pacific Northwest Seismic Network in poorly covered regions of Oregon, contribute to the Earthquake Early Warning system, and increase research capabilities and funding opportunities for the University of Oregon.

- PLEASE RESPOND TO:
- 2134 RAYBURN HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515-3704  
(202) 225-6416
  - 405 EAST 8TH AVENUE, #2030  
EUGENE, OR 97401  
(541) 465-6732  
1-800-944-9603
  - 125 CENTRAL AVENUE, #350  
COOS BAY, OR 97420  
(541) 269-2609
  - 612 SE JACKSON STREET, #9  
ROSEBURG, OR 97470  
(541) 440-3523
  - defazio.house.gov

Details of this important opportunity are attached. If you have any questions, please do not hesitate to contact me or Travis Joseph of my staff (202-225-6065).

Sincerely,  
  
Peter DeFazio  
Member of Congress

Enclosures

cc:

Senate President Peter Courtney  
900 Court St. NE, S-201  
Salem, Oregon 97301

House Speaker Tina Kotek  
900 Court St. NE, Rm 269  
Salem, Oregon 97301

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## May 2015 Letter to Appropriators

### Congress of the United States Washington, DC 20515

March 23, 2015

The Honorable Ken Calvert  
Chairman  
Subcommittee on the Interior, Environment, and  
Related Agencies Appropriations  
B-308 Rayburn House Office Building  
Washington, DC 20515

The Honorable Betty McCollum  
Ranking Member  
Subcommittee on the Interior, Environment, and  
Related Agencies Appropriations  
1016 Longworth House Office Building  
Washington, DC 20515

Dear Chairman Calvert and Ranking Member McCollum:

As you craft the Fiscal Year 2016 Interior and Environment Appropriations bill, we respectfully request that you provide the U.S. Geological Survey (USGS) Earthquake Hazards program with \$70.552 million, of which \$16.1 million is to be provided to transition the earthquake early warning demonstration project into an operational capability on the West Coast. This is a \$12.6 million increase over the FY2016 requested level in the President's budget.

The USGS, in collaboration with Caltech, UC Berkeley, the University of Washington, and the University of Oregon has developed an Earthquake Early Warning system that detects waves radiating from the epicenter of a quake and would provide people in California, Oregon and Washington with seconds to even a minute or more of warning. With advanced notice, people can take cover, automated systems can be triggered to slow down trains and manage the power grid, doctors can pause surgeries, and more. The technology has been tested and proven to work effectively.

An Earthquake Early Warning system along the West Coast would cost \$16.1 million per year to construct, operate and maintain. FEMA has estimated that earthquakes cost the United States, averaged over the long term, more than \$5 billion a year. This common-sense investment will save lives, protect businesses, and could make a real difference in more rapid recovery for local communities, the federal government and the economy as a whole.

While we cannot predict when and where the next major earthquake will hit, we must do all we can to prepare ourselves so that we can mitigate the injuries, destruction, and chaos as much as possible. We are grateful for your support last year and we appreciate your consideration of our request this year.

Sincerely,



Adam B. Schiff  
Member of Congress



Peter DeFazio  
Member of Congress

  
Ami Bera  
Member of Congress

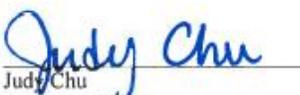
  
Earl Blumenauer  
Member of Congress

  
Suzanne Bonamici  
Member of Congress

  
Julia Brownley  
Member of Congress

  
Tony Cardenas  
Member of Congress

  
Matt Cartwright  
Member of Congress

  
Judy Chu  
Member of Congress

  
Jim Costa  
Member of Congress

  
Suzan Doherty  
Member of Congress

  
Mark DeSaulnier  
Member of Congress

  
Anna G. Eshoo  
Member of Congress

  
Sam Farr  
Member of Congress

  
John Garamendi  
Member of Congress

  
Michael M. Honda  
Member of Congress

  
Jared Huffman  
Member of Congress

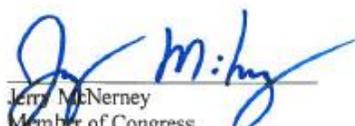
  
Shyia Jackson Lee  
Member of Congress

  
Barbara Lee  
Member of Congress

  
Ted Lieu  
Member of Congress

  
Alan Lowenthal  
Member of Congress

  
Jim McDermott  
Member of Congress

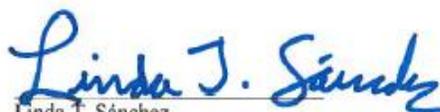
  
Jerry McNerney  
Member of Congress

  
Grace F. Napolitano  
Member of Congress

  
Eleanor Holmes Norton  
Member of Congress

  
Scott H. Peters  
Member of Congress

  
Lucille Roybal-Allard  
Member of Congress

  
Linda T. Sanchez  
Member of Congress

  
Loretta Sanchez  
Member of Congress

  
Brad Sherman  
Member of Congress



Adam Smith  
Member of Congress



Jackie Speier  
Member of Congress



Eric Swalwell  
Member of Congress



Mark Takano  
Member of Congress



Mike Thompson  
Member of Congress



Maxine Waters  
Member of Congress

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## June 2015 DeFazio Letter To FEMA



### Committee on Transportation and Infrastructure U.S. House of Representatives

Washington, DC 20515

**Bill Shuster**  
Chairman

**Peter A. DeFazio**  
Ranking Member

Christopher P. Bertram, Staff Director

June 12, 2015

Katherine W. Dedrick, Democratic Staff Director

The Honorable W. Craig Fugate  
Administrator  
Federal Emergency Management Agency  
500 C Street Southwest  
Washington, DC 20472

Dear Administrator Fugate:

I write to express my concern about the lack of priority that the Federal Emergency Management Agency (FEMA) has placed on the National Earthquake Hazard Reduction Program (NEHRP).

Earthquakes occur without warning and can cause significant damage to people, infrastructure, and the economy. Most of the United States as a whole is at risk of an earthquake, although the Pacific Northwest is especially vulnerable primarily because of the Cascadia Subduction Zone. More than 75 million Americans live in areas of significant seismic risk. In addition, the U.S. Geological Survey estimates that “42 of the 50 states have a reasonable chance of experiencing damaging ground shaking from an earthquake in 50 years (the typical lifetime of a building).”

According to FEMA’s 2008 Hazus data, the nationwide Annualized Earthquake Loss (AEL), or the amount of direct damage that would occur to the Nation’s building stock if there was an earthquake in any given year, is \$5.3 billion. In Oregon and Washington alone, the estimated AEL is over \$500 million. Moreover, these estimates do not include damage to utilities, roads, or other lifeline infrastructure nor does it include economic losses. If adequate funding is not dedicated to mitigate the risks and to perform NEHRP duties, the estimated damage amounts will only increase.

FEMA plays an important role in earthquake education and awareness as well as promoting the implementation of research results and improving preparedness, which includes promoting better building practices. Yet, in the NEHRP April 2015 program update, FEMA stated that it is not able to perform its statutory duties related to critical infrastructure. Moreover, the same update notes that there are several staff vacancies.

To reduce future disaster costs and losses and to fulfill your statutory duties, it is imperative that FEMA provide increased and adequate funding to perform all of its NEHRP duties. To do this, staff vacancies must be filled as soon as possible. Please provide me with a detailed plan for

The Honorable W. Craig Fugate  
June 9, 2015  
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increasing the funding level for the NEHRP program and a staffing plan, including the status of filling existing staff vacancies.

If you need additional information or have questions regarding this letter, please contact me or have your staff contact Janet Erickson of the Committee staff at (202) 225-9961.

Thank you for your consideration.

Sincerely,



PETER DeFAZIO  
Ranking Member

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**For Immediate Release: June 10, 2014**

Contact: Jen Gilbreath (Resources), 202-225-4081

**\*VIDEO AVAILABLE\***

## **DEFAZIO: Congress Negligent for Failing to Protect Citizens with Earthquake Early Warning System**

*Early warning system could save thousands of lives, billions in damage to critical assets*

**Washington, D.C.** – Today, House Natural Resources Committee Ranking Member Peter DeFazio (D-OR) pressed Congress for increased funding for an earthquake early warning system that could save lives and protect infrastructure from the devastating effects of a major quake.

“It’s pretty pathetic that countries such as Romania, Mexico and Mongolia are doing more to protect their citizens from severe earthquakes than the United States of America. We need two earthquake warning systems on the West Coast. We need a land based system that is capable of giving early warning when an earthquake is eminent. An early warning system could give Portland 2-3 minutes to shut down the Max system, get people off of bridges, or to shut down critical manufacturing. We also need a seabed based system that could detect earthquakes off the West Coast. If we had that system, we could potentially save thousands of lives and tens of billions of damage to critical assets. A state of the art system would cost us as much as the Pentagon spends in just twelve hours. Congress is being negligent—these systems exist, the technology works, but Congress lacks the will to make these needed investments,” said DeFazio. [\[see video here\]](#)

### **BACKGROUND**

The U.S. Geological Survey (USGS) reports that setting up a public early warning system for the entire West Coast would cost \$38 million initially, and then \$16 million in annual operating costs. Currently, the U.S. has invested roughly \$1 million a year since 2006 to develop such a system. In contrast, Japan, Mexico, Turkey, China, Mongolia and Romania all have earthquake early warning systems that can give the public a warning before an earthquake tremor reaches their community.

Japan had seismic instruments on the seabed prior to the catastrophic 2011 earthquake and tsunami that killed over 15,000 people, but they were not connected or monitoring and providing data in real time. After the earthquake, Japanese researchers found increased slow-slip earthquake activity in the days preceding the massive quake that could have provided additional advance warning if those sensors had been attached via cable.

Last month, the Scientific Earthquake Studies Advisory Committee submitted a report that found the USGS earthquake budget is already overstretched, and that attempting to implement an early warning system given the current budget levels would “over-extend current USGS resources.” The Committee urged that the USGS get additional funding in order to develop and operate an earthquake early warning system.

DeFazio joined over two dozen members of Congress in April in a letter asking for increased funding needed to establish an early warning system along the West Coast.

Testimony from the hearing’s witnesses can be found here:

<https://www.youtube.com/playlist?list=PLwFLM4QLJqsNnvDe52AesUrK5rkP-SJis>

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## News from the Committee on Transportation and Infrastructure

Rep. Peter DeFazio – Ranking Member

[www.democrats.transportation.house.gov](http://www.democrats.transportation.house.gov)

**FOR IMMEDIATE RELEASE: MAY 19, 2015**  
CONTACT: Jen Gilbreath (DeFazio) 202-225-4472

# DeFazio Criticizes Congress's 'Tombstone Mentality', Urges Action on Earthquake Preparedness and Resiliency

*WASHINGTON, D.C.* -- Today, in a hearing in the House Committee on Transportation and Infrastructure, Ranking Member Peter DeFazio (D-OR) criticized Congress for decades of neglect when it comes to preparing for catastrophic earthquakes. The United States Geological Service (USGS) estimates that 75 million Americans live in areas of significant seismic risk across 42 states. Oregon is one of those states, and is at risk from several different types of earthquakes.

“A catastrophic earthquake is not hypothetical. **It is a not a question of if an earthquake will happen. It is a question of when.** That’s why this Nation needs to start taking this threat seriously and begin to prepare for a major earthquake and tsunami event. Congress needs to stop operating under a tombstone mentality - only taking action after people lose their lives - and immediately begin considering serious, thoughtful, and robust actions that could literally save tens of thousands of lives, countless injuries, and billions of dollars of damage when a catastrophic earthquake hits,” said DeFazio.

Oregon’s greatest risk is from the Cascadia Subduction Zone. The Cascadia Subduction Zone, which stretches from northern California up into British Columbia, is the mirror image of the subduction zone off the coast of Japan that caused the magnitude nine earthquake and resulting tsunami in 2011. Historically, the Cascadia Subduction Zone “slips” every 300 years or so causing major earthquakes. The last quake was in 1700 and evidence suggests it was a magnitude 8.7 to a 9.2. January of this year marks the 315<sup>th</sup> anniversary of the last major Cascadia earthquake.

A Cascadia earthquake will likely be catastrophic with the potential of triggering a tsunami. The USGS estimates that over 22,000 people live in Oregon’s tsunami inundation zone and even more enter the zone daily for employment purposes. The next big Cascadia quake will likely cause massive damage. At the request of DeFazio, Dr. Scott Ashford, Dean of the College of

Engineering at Oregon State University, testified at the hearing. Dr. Ashford indicated in his testimony that a magnitude 9.0 Cascadia Subduction Zone earthquake would shut down all of U.S. Highway 101, all access routes from the Willamette Valley or Portland metro area to the coast, and only leave parts of Interstate 5 open.

DeFazio urged his colleagues to start investing in the Nation's infrastructure – including a West Coast early warning detection system – to ensure it can withstand seismic activity, minimize potential damages and economic disruption, and provide as much warning as possible to impacted communities. An early warning system could provide metro centers such as Portland and Seattle with three to five minutes of warning, providing critical time for hospitals, schools, manufacturers, and transportation and energy system operators, and first responders.

To watch DeFazio's opening statement and questions, click here: <http://bit.ly/1dhM9At>

To read DeFazio's full written statement, click here: <http://1.usa.gov/1cN5ZTe>

## **BACKGROUND**

Last month, the Committee passed H.R. 1471, the FEMA Disaster Assistance Reform Act of 2015. That bill includes a provision that DeFazio sponsored to encourage states to use their hazard mitigation funding in support of building a capability for an earthquake early warning system. FEMA needs to do its part to make sure states are aware that mitigation funds may be used for this purpose.

Luckily, Oregonians takes the earthquake hazard seriously. The State developed the Oregon Resilience Plan, which witness Dr. Scott Ashford from Oregon State University worked on and discussed in today's hearing. The Oregon Resilience Plan was a comprehensive look at the state's risk from a catastrophic earthquake and tsunami. This included examining the State's infrastructure and making recommendations to make Oregon more resilient when the next big one strikes. Much more work is needed in Oregon but other States should be encouraged to follow Oregon's lead and examine the risk, the potential damage and develop and implement plans to address the issue.

Another way to save lives, reduce injuries, and minimize infrastructure damage is to invest in an earthquake early warning system. An early warning system can send alerts to trigger automatic shutdowns of trains, manufacturing lines, close bridges, and evacuate students from unsafe schools. It can help reduce the long-term economic losses that are often excluded from damage estimates. An earthquake early warning system worked during the 2011 Japan earthquake and it can work here.



## News from the Committee on Transportation and Infrastructure

Rep. Peter DeFazio – Ranking Member

[www.democrats.transportation.house.gov](http://www.democrats.transportation.house.gov)

**FOR IMMEDIATE RELEASE: JULY 28, 2015**

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# DeFazio Introduces Bill to Fund Earthquake Early Warning System for Pacific Northwest

*WASHINGTON, D.C.* -- Today, House Committee on Transportation and Infrastructure Ranking Member Peter DeFazio (D-OR) introduced legislation to fund an earthquake early warning system that could save lives, reduce injuries, and mitigate infrastructure damage from the devastating effects of a major quake off the Oregon Coast.

“A catastrophic earthquake is not hypothetical. **It is a not a question of if an earthquake will happen. It is a question of when.** My legislation is pretty simple. It would direct the Federal Emergency Management Agency (FEMA) to provide critical funding for an earthquake early warning system that could save thousands of lives, countless injuries, and billions of dollars of damage. The federal government needs to start taking this threat seriously and this bill is a needed first step,” said DeFazio.

An early warning system can send alerts to trigger automatic shutdowns of trains, manufacturing lines, close bridges, and evacuate students from unsafe schools. It can help reduce the long-term economic losses that are often excluded from damage estimates. An earthquake early warning system worked during the 2011 earthquake in Japan. Most of the deaths in the 2011 event were caused by the tsunami. A few minutes extra warning could give coastal residents time to seek higher ground, saving thousands of lives. The low death and injury rate from the 2011 earthquake is attributed to the extensive early warning system in place in Japan. A warning of just a few seconds can have significant impact by alerting citizens of the need to take appropriate action when an earthquake occurs.

DeFazio’s legislation would require FEMA to develop a plan, and identify the necessary funding for purchase and installation of an earthquake early warning system for the Cascadia Subduction Zone.

Watch video of DeFazio discussing his legislation [here](#).

## **OREGON BACKGROUND**

Oregon's greatest risk is from the Cascadia Subduction Zone. The Cascadia Subduction Zone, which stretches from northern California up into British Columbia, is the mirror image of the subduction zone off the coast of Japan that caused the magnitude nine earthquake and resulting tsunami in 2011. Historically, the Cascadia Subduction Zone "slips" every 300 years or so causing major earthquakes. The last quake was in 1700 and evidence suggests it was a magnitude 8.7 to a 9.2. January of this year marks the 315<sup>th</sup> anniversary of the last major Cascadia earthquake.

The State of Oregon predicts thousands of deaths and injuries plus approximately \$32 billion in infrastructure and economic damages in Oregon alone. Utility restoration may take years to fully restore service. State and local economies will be decimated.

## **LEGISLATIVE BACKGROUND**

Last month, the Committee passed H.R. 1471, the FEMA Disaster Assistance Reform Act of 2015. That bill includes a provision that DeFazio sponsored to encourage states to use their hazard mitigation funding in support of building a capability for an earthquake early warning system. FEMA needs to do its part to make sure states are aware that mitigation funds may be used for this purpose.

Earlier this year, the Subcommittee on Economic Development, Public Buildings, and Emergency Management of the Committee on Transportation and Infrastructure held a hearing on earthquake hazard preparedness, response, recovery and mitigation with a focus on the Pacific Northwest. At the request of DeFazio, Dr. Scott Ashford, Dean of the College of Engineering at Oregon State University, testified at the hearing. Dr. Ashford indicated in his testimony that a magnitude 9.0 Cascadia Subduction Zone earthquake would shut down all of U.S. Highway 101, all access routes from the Willamette Valley or Portland metro area to the coast, and only leave parts of Interstate 5 open.

The State developed the Oregon Resilience Plan, which Dr. Ashford worked on and discussed in the hearing. The Oregon Resilience Plan was a comprehensive look at the state's risk from a catastrophic earthquake and tsunami. This included examining the State's infrastructure and making recommendations to make Oregon more resilient when the next big one strikes. Much more work is needed in Oregon but other States should be encouraged to follow Oregon's lead and examine the risk, the potential damage, and develop and implement plans to address the issue.

Another way to save lives, reduce injuries, and minimize infrastructure damage is to invest in an earthquake early warning system.

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## News from the Committee on Transportation and Infrastructure

Rep. Peter DeFazio – Ranking Member

[www.democrats.transportation.house.gov](http://www.democrats.transportation.house.gov)

**FOR IMMEDIATE RELEASE: JULY 30, 2015**

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# DeFazio Announces USGS Grant To Support West Coast Earthquake Early Warning System

*WASHINGTON, D.C.* -- Today, House Committee on Transportation and Infrastructure Ranking Member Peter DeFazio (D-OR) announced that the U.S. Geological Survey (USGS) will dedicate \$4 million to help support the production of an onshore earthquake early warning (EEW) system on the West Coast. The money will be awarded to four universities, including the University of Oregon.

“Oregon needs more sensors when it comes to implementing our earthquake early warning system—especially in the southwestern part of the state. This grant from USGS is critical. It will support the great work being done at the University of Oregon to build an early warning system that gives people more time to get to safety during a major earthquake. It’s a great first step, but more must be done at the federal level. I will continue to push for the funding necessary to continue development of the EEW system, so we can save as many lives and prevent as many injuries as we possibly can,” said DeFazio.

USGS awarded the \$4 million to four universities – California Institute of Technology, University of California, Berkeley, University of Washington and University of Oregon. This money will support the production of an onshore earthquake detection system called “ShakeAlert.” According to USGS, the money will help run a robust ShakeAlert production prototype system at three centers (in Northern California, Southern California, and the Pacific Northwest), boost research and development of new features to improve the system and user engagement, and upgrade seismic networks.

“These funds are being used by the University of Oregon to adopt fifteen new sites in Oregon and make them earthquake early warning compliant,” said Doug Toomey, University of Oregon Geological Sciences Professor. “We will reconfigure the telemetry of the sensors that the Oregon Legislature funded earlier this year to reduce latency from tens of seconds to just a few. In addition, we will add a full-time project manager and field engineer to support the operations and

maintenance of these and other sites.” Toomey noted that the U.S. Geological Survey awarded \$1 million to West Coast seismic networks earlier in the year to upgrade sites in Oregon and Washington. The University of Oregon has managed Oregon sites for the Pacific Northwest Seismic Network since 1990. “Congressman DeFazio and the Oregon delegation have been consistent advocates for earthquake early warning. These investments add momentum to the eventual establishment of a fully built out west coast earthquake early warning system.”

“The federal investment in earthquake early warning is supported by university research and our capacity to manage scientific infrastructure. This investment creates both a public service benefit as well as new opportunities for scientific discovery in a seismically active region,” said Michael H. Schill, University of Oregon president. “These monitors also contribute to our investment in faculty hiring, specifically our clusters of excellence focus in Volcanology, that will help us make new discoveries about our earth.”

In March, DeFazio joined over 35 Members of Congress in sending a letter to the Interior Appropriations Subcommittee urging an additional \$16.1 million be appropriated for the transition of the EEW from a demonstration project to an operational system. Earlier this week, DeFazio introduced legislation that would require FEMA to develop a plan, and identify the necessary funding for purchase and installation of an offshore earthquake early warning system for the Cascadia Subduction Zone.

[To read the USGS press release, click here.](#)

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